



United States Patent [19]

Dixon

[11] Patent Number:

5,850,600

[45] Date of Patent:

*Dec. 15, 1998

[54]	THREE CELL WIRELESS
	COMMUNICATION SYSTEM

[75] Inventor: Robert C. Dixon, Palmer Lake, Colo.

[73] Assignee: Omnipoint Corporation, Colorado

Springs, Colo.

[*] Notice: The term of this patent shall not extend

beyond the expiration date of Pat. No.

5,402,413.

[21] Appl. No.: 876,775

[22] Filed: Jun. 16, 1997

Related U.S. Application Data

[63] Continuation of Scr. No. 410,901, Mar. 27, 1995, Pat. No. 5,640,674, Continuation-in-part of Scr. No. 682,050, Apr. 8, 1991, Pat. No. 5,402,413.

(511	Int. Cl.6	H04Q 7/00
[51]	U.S. Cl.	455/422; 455/517
[52]	0.5. Cl	455/422 432.

[56] References Cited

U.S. PATENT DOCUMENTS

Re. 27,738 8/1973 Honma et al. .
3,934,203 1/1976 Schiff .
3,978,436 8/1976 Alig et al. .
4,021,898 5/1977 Willis et al. .
4,051,448 9/1977 Coussot .
4,100,498 7/1978 Alsup et al. .

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

2004405	0/1085	Australia P	104B	7/26
3954463	9/1905	European Pat. Off F	040	7/04
0150399	8/1985	European Fat. Off.	10.10	7:04
0156335	10/1985	European Pat. Off F	1040	7/04
0130303	6/1086	European Pat. Off I	404B	7/26
0187073	0/1980	Earopean Can only	ALOH	7/06
01114222	5/1989	Japan	1010	.,

9315573 E/1993 WIPO H04J 13/00 OTHER PUBLICATIONS

Dixon, Robert C., Spread Spectrum Systems, (J. Wiley & Sons, 2d ed. 1984), pp. 1-422.

Eschenbach, Ralph, "Applications of Spread Spectrum Radio to Indoor Data Communications," *Proceedings of the IEEE*, pp. 34.5–1–34.5–3, 1982.

Freret, Payne, et al., "Applications of Spread-Spectrum Radio to Wireless Terminal Communications", *Proceedings of the IFEE*, pp. 69.7.1–69.7.4, 1980.

of the IEEE, pp. 69.7.1-69.7.4, 1980. Freret, Payne, "Wireless Terminal Communications Using Spread-Spectrum Radio", Proceedings of the IEEE, 244-248, 1980.

Kavehrad, M., et al., "Performance of Low-Complexity Channel Coding and Diversity for Spread Spectrum in Indoor, Wireless Communication", AT&T Tech. Journal, vol. 64, No. 8, pp. 1927-1965, Oct. 1985.

Kavehrad, M., et al., "Spread Spectrum for Indoor Digital Radio", IEEE Communication Magazine, vol. 25, No. 6, pp. 32-40, Jun. 1987.

(List continued on next page.)

Primary Examiner—Reinhard J. Eisenzopf Assistant Examiner—Marsha D. Banks-Harold Attorney, Agent, or Firm—Lyon & Lyon LLP

[57] ABSTRACT

A wireless communication system including a repeated pattern of cells, in which base station transmitters and user station transmitters for each cell may be assigned a spread-spectrum code for modulating radio signal communication in that cell. Radio signals used in that cell are spread across a bandwidth sufficiently wide that both base station receivers and user station receivers in an adjacent cell may distinguish communication which originates in one cell from another. Adjacent cells may use distinguishable frequencies and distinguishable codes, but it is sufficient if adjacent cells used distinguishable frequencies and identical codes. A repeated pattern of cells allows the codes each to be reused in a plurality of cells.

20 Claims, 2 Drawing Sheets

